GOVERNMENT OF INDIA
MINES
LOK SABHA

UNSTARRED QUESTION NO:106
ANSWERED ON:17.02.2009
GEOPHYSICAL MAPPING PROGRAMME
Patel Shri Kishanbhai Vestabhai

Will the Minister of MINES be pleased to state:

(a) whether Geophysical Mapping programme has been taken up in the country utilizing gravity magnetic methods;

(b) if so, the details thereof, State-wise;

(c) the salient features of said survey; and

(d) the outcome of the said surveys?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF CHEMICAL AND FERTILIZER AND MINISTRY OF MINES(SHRI B.K. HANDIQUE)

(a) & (b) : Yes,Sir.Geological Survey of India (GSI), a subordinate office of Ministry of Mines, has taken up a systematic ground regional geophysical mapping programme employing gravity and magnetic methods for preparation of gravity and magnetic maps of the country on 1:50,000 scale.A total area of 1,02,779 square kilometers has been covered by systematic geophysical mapping.The details are as follows -

State	Area covered [in square kilometers]
Maharashtra	11200
Orissa	10332
Jharkhand	378
West Bengal	4860
Meghalaya	1400
Assam	5900
Haryana	11000
Uttar Pradesh	14500

Rajasthan 3459

Gujarat 700

Andhra Pradesh 7050

Tamil Nadu 5030

Karnataka 26970

TOTAL 102779

(c) : Systematic geophysical mapping on 1:50,000 scale is done with an average station density of one station for 2.5 sq km over the entire shield area, Indo-Gangetic Plains, the Eastern and Western Ghat areas including coastal Plains and other covered areas.

The data acquired under regional geophysical mapping programme −

(i) will be used to generate gravity and magnetic maps of the areas covered.

(ii) will be useful for postulating conceptual models to target the potential areas for the exploration of metallic/ non-metallic mineral deposits and understanding the deeper sub-surface structures.

(iii) in context of mineral exploration, helps in identifying deep seated bodies having feeble to strong density contrast and magnetically susceptible zones.

Gravity and magnetic mapping methods can be used in ground water survey, basement configuration etc. This method along with other geophysical methods i.e. seismic reflection surveys can be used to explore hydrocarbons.

(d) : Some of the encouraging results obtained through data generation by this mapping programme with respect to mineral exploration and updating geoscientific knowledge base are−

(i) extension of concealed schist belt and favourable zones of gold mineralization and emplacement of kimberlite clan rocks in Chitradurga − Gadag and Raichur schist belt of Karnataka.

(ii) several gravity lows, indicating small sub-basins for lignite at shallow depth, in Ramnad sub-basin, Tamil Nadu.

(iii) the prominent gravity low anomaly around Karbi, Haryana and indicating sub-surface basinal structure stretched over a length of 15 km.

(iv) measurement of 'g' values at five locations of Pune and Mumbai for factories and laboratories on commercial basis.

(v) determination of sub-surface tectonic configuration of Indo-Gangetic Plains of Uttar Pradesh.

(vi) curving out the basinal morphology of the Sakoli basin of Maharashtra.